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# The Reading Naturalist

No. 4

BRITISH MUSEUM
10 OCT 1961
NATURAL HISTORY

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## Editorial

Once again it has been found necessary to duplicate our annual journal owing to the high cost of printing. We hope, nevertheless, that this year's number will be found acceptable to our increasing circle of readers. Besides our regular features, the Extracts from the Honorary Recorder's Reports, this issue contains three articles of general interest, two of which incorporate Keys for the identification of specimens in the field. These should prove valuable to field naturalists in other parts of the country, and, with this in mind, they have been made available as reprints.

To all our contributors we wish to express our thanks, and to Mr. P.A. Betts who designed and prepared the block of the Herb Paris which again appears on the cover.

L.H. WILLIAMS.

Editor.

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# THE ORACLE MATHALIA

## No. 4.

## 1927

### Editorial

Once again it has been found necessary to duplicate our annual journal owing to the high cost of printing. We hope, nevertheless, that this year's number will be found acceptable by our increasing circle of readers. Besides our regular features, the Extracts from the Honorary Secretary's Report, this issue contains three articles of general interest, two of which incorporate keys for the identification of specimens in the field. These should prove valuable to field naturalists in other parts of the country, and, with this in mind, they have been made available as reprints.

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E.M. WILLIAMS.

Editor.

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# A KEY TO THE IDENTIFICATION OF THE SHELLS OF THE LAND SNAILS OF READING AREA

by Dr. H.E. QUICK

In the British Isles there are about 88 species of land snails and 20 species of slugs. The latter are not included in this key. Of these 88 species, about 57 have been recorded in Berkshire, of which I have collected 48 within ten miles of Reading, either in Berkshire or Oxfordshire. Of the remaining 31 species, some are northern and western, and some are local or rare.

A key does violence to a natural classification, and is solely intended for the identification of a limited number of species, and the characters may often have little or no taxonomic significance, but identification is the first requisite for further study.

To use the key, only a millimeter rule and a hand lens are necessary, except for the smallest species where the low power of the microscope may be needed. The size is given in millimeters, and is the larger measurement, whether this is the height as in fusiform shells, or the breadth as in discoid shells, or whichever is the greater in conoidal shells. (see figure). Authors names refer to the species, not the genus, and if the name is enclosed in brackets, he described the species under a different generic name.

The whorls of the shell descend as a gradually enlarging spiral tube, and the umbilicus is the termination of the (hollow) axis on which the whorls are wound. The umbilicus may be a round hole, or may be reduced to a mere slit or completely closed.

Viewed from above, the whorls form a descending clockwise (dextral) spiral in the great majority of species, and in a small minority of species, a counter-clockwise (sinistral) spiral. Extremely rarely a sinistral example of a normally dextral shell is found, and vice-versa.

On hatching from the egg, most snails have about one and a half whorls, which increase to the mature number, which may be up to ten or eleven in some genera, e.g. Clausilia. In immature shells the lip is thin, and remains so in some genera, while in others it becomes thickened at maturity and the mouth may develope "teeth" or folds. In Pomatias (not to be confused with Helix Pomatia) a shelly plate is attached to the back of the foot, and is a permanent part of the animal, which closes the mouth of the shell when the animal withdraws. This is the operculum. In Acme the operculum is horny not shelly. Non-operculate snails often form a film of mucus across the mouth of the shell when they withdraw temporarily, which is called the epiphragm, and prior to long periods of withdrawal at hibernation and aestivation, a thicker epiphragm, impregnated with calcareous granules, is formed, and this is white and opaque, and has a small hole left for respiration. On waking from the dormant period the epiphragm is pushed off by the emerging foot, and falls away.

The descriptions apply to empty, clean shells of recently dead animals. Old dead shells become white, opaque and lustreless by weathering, but for work on Pliocene and Holocene (and older) deposits one must learn to recognise them in this condition. Such recognition, and recognition of immature stages of such genera as Oxychilus, only comes with experience, and by comparison with a series of growth stages. The aspect of translucent shells containing the animal, is modified because the colour of the kidney and digestive gland, and colour and pattern of the mantle show through. Most species that are normally brown have a more or less frequent colourless variety (albinoid).

The shell is an important, easily studied, and often beautiful part of a mollusc, but it is only a part, and study of the animal itself, its anatomy, habits, ecology and distribution is equally necessary and important. Much remains to be learned of even our commonest species.

There is unfortunately no recent hand-book on British snails in print, though one can sometimes be obtained second-hand. There is however an excellent recent census and taxonomy of all the British land and fresh-water molluscs by A.E. Ellis (Ellis 1951) in the Journal of Conchology, and there is also a recent synopsis of British slugs. (Quick 1949).

Snails can be found at any time of the year, even in mid-winter and in drought, but the best time for collecting is in mild weather after recent rain, when they come out of their retreats and are on the move. They are to be looked for on herbage, under stones and logs, amongst dead leaves, on tree trunks and old walls, in marshy places, and in rubbish heaps. For the minute species, it is often more profitable to bring home a bag of beech-wood ground litter, moss or dead leaves from a promising spot, and search it at leisure, rather than hand pick in the field.

Snails sent by post, should be packed in a tin box with some damp (not wet) moss or blotting paper. Minute species should be put in a corked specimen tube enclosed in the box, with sufficient packing to prevent rattling.

I shall be very glad to hear of errors and ambiguities in the key, and will very willingly help to identify doubtful and difficult species.

In conclusion, I wish to thank Dr. Hora for invaluable help and advice in the preparation of this key, and to say that I alone must be held responsible for errors and shortcomings.

## REFERENCES

Ellis, A.E., 1926, British Snails, Oxford Clarendon Press. Out of print, but can sometimes be obtained second-hand. This is the most useful single volume work for the beginner, on the land snails and slugs.

Ellis, A.E., 1951, Census of the distribution of British non-Marine mollusca. Journal of Conchology, 1951, Vol.23, Nos.6 and 7, Boycott Memorial Number. Price £1. from Mr. D.Nutt (A.G. Berry) 212, Shaftesbury Avenue, W.C.2.

Geyer, D., 1927, Unsere Land - und Süsswasser Mollusken, Stuttgart. It contains very useful descriptions and figures of all the German shells, which include all the British and many others as well. Sometimes obtainable second-hand.

Quick, H.E., 1949, Synopses of the British Fauna, No.8, Slugs (Mollusca) The Linnean Society of London, Burlington House, Piccadilly. Price 2s. 6d.

Taylor, J.W., 1894-1921 Monograph of the Land and Fresh-Water Mollusca of the British Isles. This work was never completed. The volumes and parts published can sometimes be obtained second-hand, but are rather expensive.

## KEY TO THE GENERA

Operculum present 1
Operculum absent 2

1 (a) Operculum thick, shelly, shell conoid, 15mm. — Pomatias elegans (Müller)

(b) Operculum horny, shell fusiform, 2mm. — Acme fusca (Montagu)

2 Shell sinistral 3
Shell dextral 4

3 (a) 2mm., mouth with several teeth or folds — Vertigo pusilla (Müller)

(b) 8mm. to 18mm., mouth with several teeth or folds — Clausilia

(c) 8mm., mouth without teeth or folds, or with one small tooth — Balea perversa (Linnaeus)

4 Height greater than breadth 5
Height less than breadth 8

5 Mouth toothed 6
Mouth not toothed 7

6 (a) 7mm., 8 teeth, not glossy, brown — Abida secale (Draparnaud)

(b) 6mm., 3 teeth, glossy, brown — Azeca goodalli (Ferussac)

(c) 3mm., 1 tooth, silky, raised brown rib outside the lip — Pupilla muscorum (Linnaeus)

(d) 4mm., 1 tooth, silky, no raised rib outside the lip, which is white as in the three preceeding species — Lauria cylindrica (da Costa)

(e) 2mm., 4-9 teeth, glossy or silky, pump, brown — Vertigo

(f) 2mm., 3 teeth, white, silky, slender — Carychium

7 (a) 9mm. to 17mm., translucent amber to horn colour, lip thin, same colour as the shell — Succinea

(b) 9mm. to 15mm., opaque dull brown, lip white, thickened — Ena

(c) 6mm., translucent glossy brown, lip chestnut, thickened — Cochlicopa

(d) 5mm., translucent, glossy, white, very slender, lip thin, subterranean — Caecilioides acicula (Müller)

(e) 3mm., silky, brown, lip thin — Columella edentula (Draparnaud)

8 Conoid 9
Discoid 14

9 With spines, ridges or "bristles" 10
Without such 11

10 (a) 2mm., with regular transverse ridges produced into spines at the periphery of the whorls, lip thin — Acanthinula aculeata (Müller)

(b) 8mm., beset with short curved bristles pointing forwards, white rib within the lip, umbilicus size of pin head — Hygromia (part)

(c) 7.5mm., beset with short straight bristles, not pointing forward, umbilicus size of pin point — Ashfordia granulata (Alder)

11 Shell banded 12
Shell not banded 13

12 (a) 12mm. to 16mm., white opaque, with a glossy brown apex and a brown or purple band above the periphery and several beneath, white rib within the lip — Helicella (part)

(b) 21mm., purple brown with yellow flecks and thin spiral lines (lens), a purple band above the periphery, lip white and expanded umbilicus a slit — Arianta arbustorum (Linnaeus)

(c) 18mm. to 21mm., pale yellow, pink or lavender, 5 to 0 dark bands, which may be separated, or two or more fused together, lip expanded and either white or dark, umbilicus closed — Cepaea

(d) 30mm., brown, indistinctly banded or with flammular markings, surface wrinkled like a drying apple skin, lip white, umbilicus closed — Helix aspersa (Müller)

13 (a) 2mm., dark brown, not glossy, lip thin — Pyramidula rupestris (Draparnaud)

(b) 3mm. to 3.5mm., brown glossy, lip thin; shaped like a peg top — Euconulus fulvus (Müller)

(c) 19mm., whitish, silky lustre, often tinged with reddish brown towards the mouth, defining a peripheral pale streak, a white rib within the lip, umbilicus small — Monacha cantiana (Montagu)

14 Shell banded 15
Shell not banded 16

15 20mm., opaque white with glossy brown apex and a brown or purple band above the periphery and several below, white rib within the lip, umbilicus very large — Helicella (part)

16 Under 5mm. 17
Over 5mm. 18

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| 17 | (a) 1.3mm., brown, lip not thickened, umbilicus large | Punctum pygmaeum (Draparnaud) |
| | (b) 2.5mm., white, lip thickened and reflexed, like a French horn, umbilicus half the width of the last whorl | Vallonia |
| | (c) 3mm., colourless or greenish, transparent, glossy, umbilicus less than quarter the width of last whorl | Vitrea crystallina (Müller) |
| | (d) 4mm., brown, silky lustre, last whorl slightly expanded, umbilicus rather less than half the width of last whorl | Retinella* (part) |
| 18 | (a) 6mm., translucent, greenish, glossy, last whorl much expanded, umbilicus closed | Vitrina pellucida (Müller) |
| | (b) 7mm., discoid but less flat than the preceeding five species, glossy or silky | Zonitoides |
| | (c) 7.5mm., brown, dull, with reddish flecks, strongly and regularly transversely ridged, lip thin, umbilicus large | Discus rotundatus (Müller) |
| | (d) 6mm. to 15mm., glossy or very glossy, amber, translucent, | Oxychilus* |
| | (e) 8mm., silky lustre, otherwise very like Oxychilus | Retinella* (part) |
| | (f) 13mm., not glossy, brown to horn colour, periphery bluntly keeled, white rib within the lip | Hygromia (part) |
| | (g) 17mm., not glossy, brown with flammular markings, some well separated strong ridges, surface shagreened or granular, a sharp pronounced peripheral keel, lip white and reflexed | Helicigona lapicida (Linnaeus) |

* These genera require some experience before they can be distinguished with certainty.

## LIST OF THE SPECIES

Arranged in the order of the Census in the Journal of Conchology, 1951, Vol. 23, Nos. 6 and 7, 1951

| Species | Shape | Size in mm. | Other characters |
|---|---|---|---|
| Pomatias elegans (Müller) | Conoid | 15 | Dull yellow, mouth round, interior of shell bright yellow, operculate. Calcicole |
| Acme fusca (Montagu) | Fusiform | 2 | Glossy brown, operculate. In damp leaves. |
| Carychium minimum (Müller) | Narrowly conoid | 2 | White, nearly smooth, 5 whorls, more tumid than next, mouth 3-toothed. In damp places. |
| Carychium tridentatum (Risso) | Narrowly conoid | 2.5 | White, finely striated, 5½ whorls, less tumid than last, mouth 3-toothed, in drier places. |

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| Succinea putris (Linnaeus) | Conoid | 15 | Amber or horn colour, translucent. In damp places. |
| Succinea pfeifferi (Rossmassler) | Conoid | 10 | Amber or horn colour, translucent. In reeds and rushes and marshy places. |
| Azeca goodalli (Ferussac) | Conoid-fusiform | 6 | Brown, glossy, mouth 3-toothed. In damp moss and leaves in woods. |
| Cochlicopa lubrica (Müller) | Conoid-fusiform | 6 | Brown, glossy, mouth not toothed. In damp moss and leaves. |
| Cochlicopa minima (Siemaschko) | Conoid-fusiform | 5 | Like lubrica, but more slender. In drier places. |
| Pyramidula rupestris (Draparnaud) | Conoid | 2 | Dark brown. On dry rocks and walls. |
| Columella edentula (Draparnaud) | Fusiform | 3 | Brown, like Pupilla but more slender and mouth not toothed. In damp places. |
| Vertigo antivertigo (Draparnaud) | Barrel-shaped | 2 | Dextral, brown, glossy, mouth 8 or 9-toothed. In marshy places. |
| Vertigo substriata (Jeffreys) | " | 2 | Dextral, silky lustre, finely striated, mouth 6-toothed. Under stones, leaves, in moss and grass in damp places. |
| Vertigo pygmaea (Draparnaud) | " | 2 | Dextral, brown, silky, mouth 5-toothed. Under stones, logs, and leaves in damp and dry places. |
| Vertigo moulinsiana (Dupuy) | " | 2.3 | Dextral, pale brown, silky, mouth 5-toothed. Our largest Vertigo. On reeds and rushes. |
| Vertigo pusilla | " | 2 | Sinistral, pale brown, silky, mouth 6-toothed. In moss, ivy and leaves on dry walls and banks. Local. |
| Lauria cylindrica (da Costa) | Fusiform | 4 | Brown, silky, mouth 1-toothed. On ivy-covered wall, in crevices in bark, and in moss and stones. |
| Pupilla muscorum (Linnaeus) | Fusiform | 3 | Brown, silky, mouth 1-toothed, with a raised external brown rib. Under stones and leaves, and in grass in dry places. |
| Abida secale (Draparnaud) | Conoid-fusiform | 7 | Dull brown, mouth 8 or 9-toothed. In grass and low herbage on dry hill-sides. |
| Acanthinula aculeata (Müller) | Conoid | 2 | Shell beset with ridges produced at the periphery into backwardly directed spines, lip thin. In dead leaves in woods. |
| Vallonia costata (Müller) | Discoid | 2.5 | White, opaque, transversely ridged, mouth expanded, thickened. Like a French horn. In grass, under stones in dry and moist places. |
| Vallonia pulchella (Müller) | Discoid | 2.5 | Like costata but smooth. In damp places. |
| Vallonia excentrica (Sterki) | Discoid | 2.25 | Like pulchella, but last whorl more expanded. In dry places. |

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| Ena obscura (Müller) | Conoid | 9 | Dull brown, often coated with mud, lip thickened white. Hedge banks, moss, and on tree trunks. |
| Ena montana (Draparnaud) | Conoid | 15 | Like obscura, but much larger. In old woods in leaves on ground, and on tree trunks. Local |
| Clausilia laminata (Montagu) | Fusiform | 18 | Sinistral, rather smooth and glossy, mouth toothed. Woods, tree-trunks, hedges. Calcicole. |
| Clausilia bidentata (Strom) | Fusiform | 8 | Sinistral, not glossy, striated, mouth toothed. Woods, tree-trunk, hedges, dry walls. |
| Clausilia rolphi (Turton) | Fusiform | 12 | Sinistral, not glossy, strongly striated mouth toothed. Hedges, copses, woods. Local. |
| Balea perversa (Linnaeus) | Fusiform | 8 | Sinistral, silky lustre, lip thin. Like an immature Clausilia. Crevices in bark and walls. |
| Caecilioides acicula (Müller) | Fusiform | 5 | White, very slender. No eyes. Subterranean, under turf and boulders. |
| Helicigona lapicida (Linnaeus) | Discoid | 17 | Shell thick, pale brown or horn colour, with flammular markings, surface shagreened (lens) periphery sharply keeled, lip thickened, white. Crevices in trees, rocks and walls. |
| Arianta arbustorum (Linnaeus) | Conoid | 22 | Dark brown, usually with a purple band just above the periphery, surface grooved by fine incised spiral lines (lens) crossed by stronger striae, lip white and reflected. Woods, hedges and copses. |
| Cepaea hortensis (Müller) | Conoid | 18 | Pale yellow, pink, or lavender, with five or fewer dark bands which are often more or less fused together, lip white and reflected. Hedges, copses, gardens and waste places. |
| Cepaea nemoralis (Linnaeus) | Conoid | 21 | Like hortensis, but lip dark brown. In similar sites, and on sand-dunes. |
| Helix aspersa (Müller) | Conoid | 32 | Brown, often indistinctly banded, with flammular markings, surface wrinkled like the skin of a drying apple. Crevices in walls, hedges, quarries, rubbish heaps, sand-dunes. The common garden snail. |
| Hygromia striolata (C.Pfeiffer) | Discoid | 13 | Brown or horn colour, no bristles except when very young, periphery bluntly keeled, often with a paler band, white rib within the lip. Hedges, waste places, gardens. |
| Hydromia hispida (Linnaeus) | Conoid | 8 | Brown or horn colour, beset with forwardly directed curved bristles, periphery not keeled but sometimes with a pale band, white rib within lip. Hedges, woods, gardens. |
| Ashfordia granulata (Alder) | Conoid | 8 | Pale horn colour, thin, beset with straight bristles not pointing forward, umbilicus pin-point. Hedges, copses, ditch banks. |

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| Monacha cantiana (Montagu) | Conoid | 19 | Whitish, rather thin, often tinged with reddish brown towards the lip defining a paler peripheral band, a white rib within the lip. Hedges, copses, waste places. |
| Helicella caperata (Montagu) | Discoid-conoid | 12 | Brown, thick, closely and strongly striated, often with bands and flammular markings, apex glossy brown, white rib within lip. On exposed grassy places and margins of arable land. |
| Helicella gigaxii (L. Pfeiffer) | Discoid-conoid | 12 | Like caperata, but spire less raised, striae less coarse, and umbilicus a little smaller. In similar places. |
| Helicella vergata (da Costa) | Conoid | 16 | Opaque white, banded with purple or brown, apex glossy brown, white rib within the lip. In similar sites to the two preceeding species. |
| Helicella itala (Linnaeus) | Discoid | 20 | Similar to the preceeding members of the genus, but larger and much flatter, with umbilicus large, exposing the spire. In similar sites. |
| Punctum pygmaeum (Draparnaud) | Discoid | 1.3 | Brown, finely striated, lip not thickened. Woods, fields, under stones and logs, and in dead leaves. |
| Discus rotundatus (Müller) | Discoid | 7.5 | Brown, strongly and regularly ridged flammular markings, lip thin, umbilicus large. Ubiquitous. |
| Euconulus fulvus (Müller) | Conoid | 3.5 | Brown, glossy, shaped like a peg top, umbilicus small. In damp moss, dead leaves, under stones and logs in woods, fields and marshes. |
| Vitrea crystallina (Müller) | Discoid | 3 | Colourless or greenish, transparent, glossy, umbilicus pin-point. In grass, dead leaves, under logs in damp or marshy places. |
| Oxychilus draparnaldi (Beck) | Discoid | 15 | Smoky brown or amber, translucent, silky to glossy, last whorl somewhat expanded. Waste places, hedges and woods, but commoner in gardens. |
| Oxychilus cellarius (Müller) | Discoid | 10 | Horn colour, very flat above, last whorl increasing regularly. Waste places, hedges, woods, gardens. |
| Oxychilus alliarius (Müller) | Discoid | 6.5 | Horn colour or amber, very glossy. The animal smells strongly of garlic, especially if irritated or crushed. In similar places to cellarius but less common in gardens. |
| Oxychilus helveticus (Blum) | Discoid | 8 | Amber to horn colour, very glossy, less flattened than cellarius and alliarius. Smells of garlic, but less strongly than alliarius. In similar sites. |

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| Retinella nitidula (Draparnaud) | Discoid | 8 | Amber or horn colour, silky lustre, last whorl slightly expanded like Oxychilus draparnaldi, umbilicus relatively larger than in the four preceeding species. In similar sites. |
| Retinella pura (Alder) | Discoid | 4 | Horn colour or white, otherwise like a miniature nitidula. In similar sites. |
| Retinella radiatula (Alder) | Discoid | 4 | Brown to horn colour, distinctly and regularly striated, umbilicus smaller than in pura. In damp woods and marshy places. |
| Zonitoides excavatus (Alder) | Discoid | 7 | Horn coloured, irregularly striated, umbilicus more than half the diameter of the last whorl, exposing the spire. In dead leaves and under logs. Calcifuge. |
| Zonitoides nitidus (Müller) | Discoid | 8 | Dark brown, rather glossy, finely and irregularly striated, umbilicus less than half the diameter of the last whorl. In damp places near ditches and streams. |
| Vitrina pellucida (Müller) | Conoid-discoid | 6 | Transparent, greenish, thin, last whorl much expanded, umbilicus closed. In damp and dry places, under leaves and logs, in moss and low herbage. |

## GLOSSARY

| | |
|---|---|
| Aestivation | becoming dormant in the summer. |
| Albinoid | lacking pigment, and therefore white or colourless. |
| Calcicole | restricted to calcareous ground. |
| Calcifuge | restricted to non-calcareous ground. |
| Conoid | conical. |
| Discoid | flattened like a disc. |
| Epiphragm | A film of mucus across the mouth of a shell. |
| Flammular | reddish more or less flame like markings. |
| Fusiform | spindle or cigar shaped. |
| Holocene | the latest geological period, in which the deposits contain only living or recently extinct species. |
| Lip | the edge of the mouth of a shell. |
| Mantle | the thin roof of the lung cavity which occupies the last whorl of the shell. |
| Operculum | a horny or shelly plate attached to the back of the snail's foot, and is a permanent part of the animal. |
| Pleistocene | The geological period preceeding the Holocene. |
| Striated | marked by shallow grooves, giving a wrinkled appearance to the shell. |
| Taxonomic | classificatory. |
| Umbilicus | the termination of the (hollow) axis on which the whorls are wound, which is seen at the base of the shell. It may be a round hole or contracted to a slit, or completely covered. |

## Legends of figures

Figure I. Shell of a generalised Land Snail.

A, apex. B, breadth. BW, body whorls. C, columella. H, height. L, lip. M, mouth. SP, spire. T, teeth. U, umbilicus. W, whorls.

Figure 2. Head of Haemopis sanguisuga, showing eyes.

Figure 3. Head of Helobdella stagnalis, showing eyes and dorsal chitinous scute (S).

Figure 4. Ventral view of Haemopis sanguisuga showing the anterior half of the body, and the posterior sucker. AS, anterior sucker. CL, clitellum. F, female pore. M, mouth. MP, male pore. PS, posterior sucker.

Figure 5. Head of Theromyzon tessulatum.

Figure 6. Head of Erpobdella octoculata.

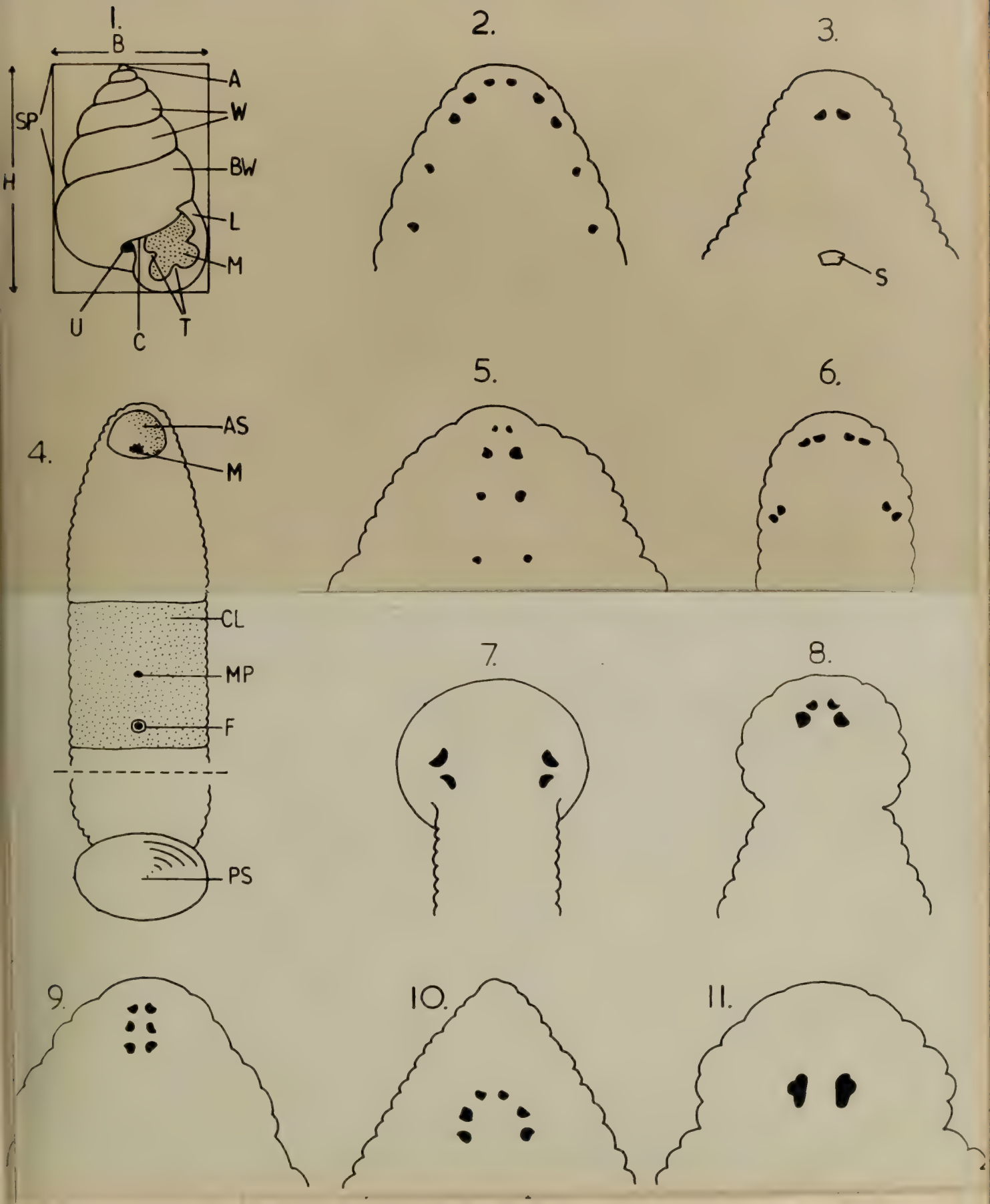
Figure 7. Head of Piscicola geometra.

Figure 8. Head of Hemiclepsis marginata.

Figure 9. Head of Glossiphonia complanata.

Figure 10. Head of Glossiphonia heteroclita.

Figure 11. Head of Batracobdella paludosa.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# FRESH WATER LEECHES

by K.H. MANN, B.Sc.

My question eagerly did I renew
"How is it that you live, and what is it that you do?"
He with a smile did then his words repeat:
And said that, gathering leeches, far and wide
He travelled, stirring thus about his feet
The waters of the pools where they abide.
"Once I could meet with them on every side,
But they have dwindled long by slow decay,
Yet still I persevere, and find them where I may."

Wordsworth. 1802.

Although the Medicinal leech was dwindling in Wordsworth's day, and is now extremely rare in this country, other species are abundant in almost every lake, pond, and stream. A couple of hours spent examining the vegetation of the margin of a lake in Berkshire may yield upwards of two hundred leeches of all sorts and sizes. There are twelve species to be obtained within five miles of Reading, and the Medecinal leech may be obtained in the New Forest.

Zoologists regard leeches as Annelids, that is to say, worms which are divided into segments. They are probably closely related to the earthworms, but have evolved along a rather different line, developing powerful suckers at the two extremities. These suckers enable the leech to cling to other animals, and with this habit is often associated that of sucking blood. Indeed, for most people the mention of the word leech calls to mind a rather repulsive animal which invariably sucks blood. This is a misconception, since of the British species, five feed on small insects and worms, and swallow their prey whole. Four other species feed mainly on pond snails. Of the rest, two are blood-sucking parasites of fish, and the other attaches itself to aquatic birds, and only Hirudo Medicinalis attacks warm blooded animals.

Leeches are divided into two groups, the Rhynchobdellae which have a muscular proboscis which can be protruded from the mouth in feeding, and the Arhynchobdellae which, lacking the proboscis, have muscular ridges, often armed with sharp teeth, lying just inside the mouth.

The head of a leech is shown in figures 2 and 4. On the dorsal, or uppermost side, are several small black eye spots. The arrangement of the eyes is an important feature in identification. On the ventral side of the head is a saucer-shaped sucker, in the base of which is the mouth opening. At the posterior end of the body is found a second, larger sucker. A leech moves in a looping movement, first drawing up its posterior sucker close behind the anterior one, and then moving the anterior sucker forward by extending the body. The anus is placed dorsal to the posterior sucker.

Along the length of the body are minute sense organs which respond both to light and to touch. These may be placed on prominent papillae. If so these are then used as an aid to identification. The body is divided externally by circular transverse grooves into a large number of rings, or annuli. In most leeches the annuli are all of the same width, but in a few species wide annuli alternate with narrow ones.

Leeches are hermaphrodite, that is to say they produce both male and female germ cells. The genital pores occur in the mid-ventral line, about 1/3 of the distance from head to tail. The male pore is always in front of the female one. (see fig. 4). Self fertilisation has not been observed, and in many species cross fertilisation is by "hypodermic impregnation". The sperms are enclosed in a sharply pointed capsule, the spermatophore, and this is driven into the skin of another individual. The sperms then migrate through the body tissues to the ovaries, where fertilisation occurs.

Members of the family Glossiphoniidae attach their eggs either to the ventral body surface, or to some suitable substrate. The parent then broods over the eggs until they are hatched. The newly emerged young attach themselves to the ventral surface of the parent by a special gland on the dorsal surface of the body. In Helobdella the position of this gland is marked in the adult by a chitinous or horny plate. (fig. 3).

All leeches other than Glossiphoniidae enclose their eggs in a capsule secreted by a glandular portion of the body wall, the clitellum. The capsule is either attached to a stone, plant, or stick, or is buried in mud. The parent takes no further interest in it.

## Methods of Collecting and Identifying Leeches.

The freshwater leeches may be found in all types of lake, pond, and stream, except perhaps the more acid ones. They generally avoid the light, and so may be found on the undersides of sticks, stones, or any solid debris. A particularly useful technique is to strip the outer leaf bases from reeds and rushes. Almost invariably some leeches will be found sheltering just below the water line. They will amply repay examination with a hand lens or microscope, as most species are very beautifully marked. To see details clearly it is best to narcotise them by placing them in a small quantity of tap water, and then adding soda water from a siphon. This will immobilise for 10-20 minutes all leeches except large specimens of Hirudo and Haemopis which should be narcotised in 15% alcohol. Frequently, when dealing with these two large leeches, it is impossible to see the eyes on account of the dense black pigment covering the head. This may be removed by immersing the head in 5% caustic soda, after killing the leech in spirit.

The identification of leeches can be extremely difficult, on account of their great variability. When absolute accuracy is essential, it is often necessary to examine internal characters. For the field naturalist, however, it may be more important to be able to identify specimens with the aid of a hand lens, using external characters only. The key which follows has been designed to meet this need, and ought to give the correct identification in at least nine cases out of ten.

Of the twelve species occurring in the Reading district, two, Dina lineata and Batracobdella paludosa have been found only in the last twelve months, and are new to the British fauna. The author would be glad to hear of any new records of these species. Hirudo medicinalis was formerly regarded as extinct in this country, but is now found occasionally in East Anglia, Wales, and the New Forest. It is unlikely that it will be found in the Reading district.

## KEY TO THE BRITISH FRESHWATER LEECHES

1 (2) Two to eight eyes, when there are eight eyes these are placed in two longitudinal rows, as in figure 5.

Suborder Rhynchobdellae ..... 3

2 (1) Eight or ten eyes, when there are eight eyes these are placed in two transverse rows as in figure 6.

Suborder Arhynchobdellae ..... 15

3 (4) Body at rest, long and cylindrical, eyes, two pairs as in figure 7. Both anterior and posterior suckers distinct from the body. Piscicola geometra (L)

4 (3) Body at rest broad, flattened. Anterior sucker not, or only slightly distinct from the body.

Family Glossiphoniidae ..... 5

5 (6) Head and anterior sucker slightly marked off from the body as in figure 8. Eyes, two pairs. Hemiclepsis marginata (O.F. Müller)

6 (5) Head and anterior sucker not distinct from the body ..... 7

7 (8) A dorsal chitinous scute about 1/3 distance from anterior to posterior sucker (figure 3). One pair of eyes ..... Helobdella stagnalis (L)

8 (7) No chitinous scute. Eyes more than one pair, or if one pair, then these are lobed, showing that they have been formed by the fusion of several eyes. ... 9

9 (10) Eyes, four pairs arranged as in figure 5.

Theromyzon tessulatum (O.F. Müller)

10 (9) Eyes less than four pairs ..... 11

11 (12) Body firm. Eyes typically three pairs, but often less. If less, then colour not green. Glossiphonia ..... 13

12 (11) Body soft, eyes less than three pairs (figure 11). Colour greenish brown.

Batracobdella paludosa (Carena)

13 (14) Adults at rest more than 15mm. long. Papillae usually present dorsally. Eyes typically three pairs as in figure 9. Glossiphonia complanata (L)

14 (13) Adults at rest less than 15mm. long. Papillae absent. Eyes, typically three pairs as in figure 10. Glossiphonia heteroclita (L)

15 (16) Eyes four pairs as in figure 6. Family Erpobdellidae 17.

16 (15) Eyes five pairs as in figure 2. Family Hirudinidae 23.

17 (18) All rings of the body of equal width ..... Erpobdella 19.

18 (17) Some rings of the body wider than others. 21.

19 (20) The dorsal surface with black pigment. Genital pores separated by 3 rings. Erpobdella octoculata (L)

20 (19) The dorsal surface a uniform brown colour. Genital pores separated by 4 rings. Erpobdella testacea (Sav.)

21 (22) Four narrow rings alternating with one wide ring. Genital pores separated by 2-3 rings. Dina lineata (O.F. Muller)

22 (21) Five narrow rings alternating with three wide ones. Genital pores separated by 2-3 rings. Trocheta subviridis Dutrochet

23 (24) Dorsal surface with reddish yellow longitudinal stripes. Anus small, scarcely visible. Jaws able to pierce human skin. Hirudo medicinalis L.

24 (23) Dorsal surface without reddish yellow longitudinal stripes. Anus distinct. Jaws unable to pierce human skin. Haemopis sanguisuga (L)

## NOTES ON THE SPECIES

1. Piscicola geometra. This leech has a slender, cylindrical body, 20-30mm long. It swims well, and attaches itself to several species of freshwater fish, sucking the blood for a few days, and then dropping off. It then remains for some weeks attached to the undersides of stones or plants. Piscicola may be found in numbers by turning stones in the river Pang near Stanford Dingley. In early summer the same stones bear the cocoons, which are about 1mm long.

2. Hemiclepsis marginata. This is the second British fish parasite. It may be distinguished from Piscicola by the fact that the body is flattened, and beautifully marked with green and yellow pigment. It is more common in lakes and ponds than in running water. According to some authorities Hemiclepsis also attacks tadpoles. During the summer months it is seen to be brooding over greenish eggs or young.

3. Helobdella stagnalis. This small leech, 8-16mm in length, is the most common species in alkaline lakes. It is whitish in colour, often finely speckled with grey or brown. Its food consists of small invertebrates such as pond snails, worms, and insect larvae, from which it sucks the body fluids.

4. Theromyzon tessulatum. This species was formerly known as Protoclepsis tessellata. It is of some economic importance and may be recognised by its soft, transparent body, up to 45mm long, and the characteristic arrangement of the eight eyes. A farmer at Wantage, Berks., lost about forty ducklings in the summer of 1949, and it was eventually discovered that they were heavily infested with Theromyzon. Up to this time, the species had been regarded as rare in Britain, but investigation showed that it is in fact common in Berkshire, and elsewhere. Almost any body of fresh water will yield a few specimens. The life history is somewhat as follows. Eggs are laid during June and July, and hatch in about eight days. The young remain attached to the parent for three or four months, after which they take up their position on vegetation, and await the opportunity of attaching themselves to the beak of a water bird. Having done so, they enter the nasal cavity, take a meal of blood, and then drop back into the water. Three such blood meals are necessary for the leech to grow to sexual maturity. If a very young duckling is heavily infested with the leeches, it may die. Otherwise, the leeches seem to cause little inconvenience to their hosts.

5. Batracobdella paludosa. This leech has been found for the first time in Britain, in a woodland pond near Aldermaston, Berks. It is similar in size and shape to the much more common Glossiphonia complanata (vide infra). It may be distinguished by the fact that it has a soft gelatinous body, whereas Glossiphonia has a firm "cartilaginous" body, and by the fact that it possesses at most two pairs of eyes, which more often than not are run together to give the appearance of a single pair of pigment spots. It attacks pond snails, and possibly also tadpoles.

6. Glossiphonia complanata. This common leech has a flattened, oval body, 15-30mm long, 5-10mm wide, which is firm and resistant to the touch. The colour is very variable, but there is usually a pair of longitudinal, parallel broken lines running along the back. It is very sluggish, and when handled rolls itself into a ball like a woodlouse. It is particularly common in the River Pang, but is also numerous in certain lakes and ponds. Food is obtained by sucking the body fluids of pond snails.

7. Glossiphonia heteroclita. A much smaller leech than G. complanata, this species is usually between 8 and 12mm in length. The body is translucent, frequently amber coloured, and the first paid of eyes are always closer together than the second and third pairs. G. heteroclita is seldom found in running water, but occurs most frequently on emergent aquatic plants.

8. Erpobdella octoculata. A slender, worm-like species, attaining a length of about 50mm. The black pigment on the dorsal surface distinguishes it from E. testacea. Many writers refer to it incorrectly as E. atomaria. It is equally common in lakes, ponds and streams. In the Foudry Brook, Mortimer, it is very abundant on the under sides of stones, and feeds on small insects, worms, etc., which it swallows whole. It swims with a graceful undulating movement.

9. Erpobdella testacea. This leech has often been confused with E. octoculata. but it may usually be recognised by the absence of black pigment. It occurs in much the same situations as the previous species, although it tends to be more numerous than E. octoculata in polluted waters. Both species enclose their eggs in a brown, oval and flattened, cocoon, which they cement to a stone or plant. This adaptation suits them particularly for life in running water.

10. Dina lineata. At first sight this species may be easily confused with Erpobdella testacea, but it may be distinguished chiefly by the fact that every fifth ring is wider than the others. If the number of rings between the genital pores can be determined (this requires a good lens) it will be possible to confirm the identification. The only known habitat in Britain is a pond at Grazeley Green, Berks.

11. Trocheta subviridis. This unusual leech recently turned up in a lavatory in Reading. It is not indigenous to Britain, but was probably introduced about 100 years ago. A large specimen may measure over 200mm when extended, so it is the largest of the British forms. Sewage works and other polluted places seem to provide a favourable habitat, but it is amphibious, and may be found in clay soil quite a distance from water. Here it devours earthworms.

12. Haemopis sanguisuga. The so-called "Horse leech" is in fact a perfectly innocuous creature which feeds on worms and other soft bodied animals. It was once confused with a continental species Limnatis, which lurks in pools and enters the mouths and nostrils of cattle and horses when they come to drink. Haemopis reaches a length of 100-150mm, and is usually a uniform green or black colour above, and lighter beneath, with yellow marginal bands.

13. Hirudo medicinalis. Dr. Quick has described how, when he once had the good fortune to find one of these leeches in Wales, he confirmed the identification by applying the leech to the back of his hand! The medicinal leech was once used in great numbers by doctors, who were themselves referred to as "leeches", and it is probable that the animal got its name from the doctor, and not the doctor from the animal. The depredations of the medical profession probably account in part for the scarcity of this species, but another important factor is the decline in the habit of taking horses and cattle to ponds to drink. The leech survives in localities such as the New Forest where wild ponies drink at the streams and pools.

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## THE MOSSES AND LIVERWORTS OF A READING GARDEN

by Dr. E.V. WATSON

The study of bryophytes, like charity, may well begin at home. A small town garden does not perhaps appear at first sight a very rewarding place to look for mosses and liverworts, but careful search will in all likelihood reveal between a dozen and twenty-five species. Some twenty species grow within the confines of my own small garden at Caversham, about 1/12th of an acre, and I have little doubt that a thorough watch, over all seasons of the year, would add considerably to this number. For many bryophytes, like higher plants, have one season when they are active and grow fast, another when they are quiescent and may be hard to find. This is particularly true of those occurring on arable land.

The beginner who tries to become acquainted with bryophytes first by way of those that grow, as it were, on his own doorstep can have the satisfaction of knowing that he is likely to meet there representatives of each of the main groups of both mosses and hepatics. Thus thallose and leafy liverworts, and acrocarpous and pleurocarpous mosses are all to be found among the garden flora; and as this article is intended for the novice rather than for the expert it may be well at this stage to introduce a member of each of these 4 groups. It should be pointed out however, that we are dealing with sub-divisions based upon easily recognised distinctions of habit rather than with 'natural groups' in the sense of the taxonomist. With this reservation, then, we may proceed to introduce the thallose liverwort Riccia sorocarpa. This is a very small plant that forms pale green rosettes about ¼ of an inch across. It should be looked for on fallow soil in autumn and winter. The gardener who keeps his garden assiduously dug is unlikely to find it, but where some patch of soil has remained untilled for a time, for instance between the months of August and February, it is likely to have made an appearance. The fruiting bodies are not conspicuous, for they lie embedded in the tissues of the thallus so that the spores escape only when these tissues finally rot away.

In the leafy liverworts the leaves are arranged with great precision in either two or three ranks on the stem. The stems are often more or less prostrate and creeping, and then the leaves next to the substratum are commonly much smaller than the two lateral ranks. This is true of the species that occurs most commonly in my own garden, Lophocolea bidentata. The leafy shoots of this plant have a fragile, translucent quality very different from that of the majority of mosses, and each leaf is seen, with a lens, to be cleft near its tip into two finely pointed prongs or teeth. It grows among the grass of a shaded part of the lawn and spreads readily over the moist, retentive soil of an adjoining herbaceous border. It is dioecious and fruit is rarely formed, and although the plants in my garden seem able to grow and spread with great rapidity, they do so, so far as I am aware, always by vegetative means.

The so-called acrocarpous mosses are marked by their prevailingly erect habit, with the production of fruits (capsules) at the tips of the main shoots. Whatever else in the way of bryophyte riches it may lack, even the poorest of gardens is almost sure to yield at least one of these; for Tortula muralis is at home on brick and stonework alike and even the polluted atmosphere of large towns - so fatal to many bryophytes and almost all the most beautiful lichens -- does not seem to be inimical to it. Tortula muralis is an easy moss to recognise, for each leaf in the neat rosette ends in a long, silvery-white hair and capsules at some stage of development can usually be found. These are at their best in spring, when they are ripening; each capsule is then seen to be a narrowly cylindrical object about $^1/_5$th of an inch in length, borne erect on a slender stalk - the seta - which varies from straw-coloured to purplish in hue. The name Tortula refers to the twisted peristome teeth that can be seen at the mouth of the capsule after the lid has fallen.

Most of the pleurocarpous mosses have a more or less prostrate, sprawling habit, readily forming large untidy mats which may nevertheless be objects of considerable beauty. The fruit always arises at the side of a stem, never at its tip. Perhaps the best examples of this group will be found on the larger stones of an old and shaded rockery. In my garden there is just such a patch, where owing to the shade few rock-plants will thrive and where, on the rocks themselves, bryophytes come into their own. Here I can be sure of finding a magnificent fertile mat of that commonest of all pleurocarpous mosses - Hypnum cupressiforme. Although subject to great variation - at least 5 named varieties occurring in Britain - this species may generally be recognised in the field by the regular downward curvature of the delicate, nerveless, sickle-shaped leaves. The leaves overlap one another in such a way as to give the shoot a not altogether fanciful resemblance to a miniature cypress branchlet - hence the specific epithet cupressiforme.

A small garden offers bryophytes a number of perfectly distinct habitats, and as mosses and liverworts tend to have strong habitat preferences one finds that several quite separate communities exist within the space of a few hundred square yards. Thus a lawn starved by too much mowing and too little replenishment from fertilisers, becomes infested with Rhytidiadelphus squarrosus and other characteristic mosses, besides the leafy liverwort Lophocolea bidentata referred to above. Golf greens and fairways often fall victims to the same trouble, especially on badly drained land. Not long ago my attention was called to a "lawn" that had come, perhaps through a combination of neglect and ill-drainage, to consist almost entirely of bryophytes, chiefly a form of the liverwort Plagiochila asplenioides. It is only in one small corner of my lawn, where the soil is clayey and direct sunlight seldom falls, that bryophytes threaten to get the upper hand. There Eurhynchium praelongum grows in dense tufts, intermixed with Acrocladium cuspidatum and Lophocolea bidentata.

Fallow soil supports its own very characteristic community of mosses and liverworts. Some, like the very common moss Ceratodon purpureus, are known to reproduce extensively by microscopically small bulbils or gemmae borne on the rhizoid system. Besides this species, flower-beds that have not recently been "pricked over" in my garden have yielded Phascum cuspidatum, Pottia truncata, Physcomitrium pyriforme and Pohlia delicatula, in addition to several pleurocarpous species that are apt to be represented by rather fragmentary, ill-grown specimens. Phascum cuspidatum bears its nearly spherical capsules almost sessile amongst the leaves; in Pottia truncata the old fruits are urn-shaped - each on a delicate seta barely $\frac{1}{8}$th of an inch in length; Physcomitrium pyriforme has fruits that are like miniature pears, borne erect on slender stalks, whilst in Pohlia delicatula, as in all species of Bryum, the ripe fruit is pendulous.

Strictly localised, so far as my garden is concerned, are the colonies of those two common woodland mosses Atrichum undulatum and Dicranella heteromalla. They occur on humus-rich surface layers about the bases of some very old gooseberry bushes. It is possible that their presence may have some significance in indicating that this land carried woodland in the not very distant past, for neither is a species that one associates with arable or pasture land.

The weathered cement of crazy-paving blocks is found to be the habitat of several mosses besides the common Tortula muralis referred to above. Bryum capillare, with leaves ending in greenish hair points, and Bryum argenteum, with shoots silvery and catkin-like in form, grow there. So too does Orthotrichum diaphanum, a small plant and one that can easily be overlooked. The capsules are immersed among the leaves, but each leaf has a whitish tip that gives it a characteristic appearance under the microscope and indeed makes the plant recognisable, after a little practice, in the field.

Two rather small pleurocarpous mosses, both of which fruit freely, are common on rockery stones in gardens, even in towns. These are Brachythecium velutinum, which prefers well-lit situations, and Eurhynchium confertum, which likes shade. The shaded rockery in my garden bears only the latter. Although the two plants are much alike, it may be recognised by its smooth fruit-stalk or seta and the beaked lid of the capsule, for in Brachythecium velutinum the seta is rough with wart-like papillae and the lid of the capsule is shortly conical.

The study of the bryophytes of a garden shows that no piece of ground is too small or insignificant in content to yields its "crop" of mosses and hepatics. Indeed, one may go further and suggest that a careful study of any one of these species, pursued throughout the year, might well result in adding materially to our knowledge of the biology and ecology of these interesting little plants.

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## Weather Records for 1951

Data supplied by M. Parry.

Note:

All temperature and rainfall figures, as well as frequency of days with air frost, ground frost, snow or sleet, snow lying, days of thunder and hail, were recorded at Reading University Meteorological Station. The sunshine figures refer to the sunshine recorded kept at Sutton's Seed Trial Grounds.

Mr. Parry would be glad to contact any persons in the Reading district who are interested in weather recording.

STATION – Reading

YEAR 1951

| | | JAN. | FEB. | MAR. | APL. | MAY | JNE. | JLY. | AUG. | SPT. | OCT. | NOV. | DEC. | YEAR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean Daily Temperature °F | DB | | | | | | | | | | | | | |
| | WB | | | | | | | | | | | | | |
| | Max | 45.1 | 44.7 | 46.9 | 54.2 | 53.7 | 63.5 | 72.8 | 68.1 | 66.2 | 57.6 | 53.1 | 47.9 | 57.0 |
| | Min | 33.7 | 34.4 | 35.3 | 38.0 | 44.8 | 49.4 | 54.7 | 53.2 | 51.6 | 42.5 | 42.9 | 38.1 | 43.2 |
| | Mean | 39.4 | 39.5 | 41.1 | 46.1 | 51.7 | 58.9 | 63.8 | 60.7 | 58.9 | 50.1 | 48.0 | 43.0 | 50.1 |
| Extreme Temperature °F | E. Max | 52 | 50 | 56 | 74 | 70 | 76 | 81 | 76 | 74 | 64 | 59 | 53 | 81 |
| | Date | 5 | 12 | 22 | 25 | 24 | 21 | 19, 28 | 1 | 12 | 3,6,8,15 | 7 | 15,16,30 | Jly 19,28 |
| | E. Min | 24 | 30 | 27 | 33 | 36 | 43 | 47 | 46 | 40 | 27 | 30 | 25 | 24 |
| | Date | 31 | 1, 26 | 5 | 15 | 12 | 9 | 13, 14 | 23 | 22 | 25 | 26 | 11, 12 | Jan 31 |
| | E.Grass Min | 19 | 22 | 21 | 25 | 28 | 33 | 40 | 40 | 35 | 22 | 23 | 18 | 18 |
| | Date | 31 | 1 | 31 | 15,17,22 | 3, 12 | 9,18 | 14 | 16 | 22, 29 | 23, 25 | 26 | 11, 12 | Dec 11,12 |
| Days with | Frost | 7 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 5 | 23 |
| | Ground Frost | 8 | 17 | 16 | 15 | 3 | 0 | 0 | 0 | 0 | 6 | 4 | 14 | 83 |
| Sunshine Hours | Sum | 44.5 | 58.1 | 82.5 | 171.9 | 140.4 | 223.5 | 199.8 | 163.3 | 88.2 | 88.2 | 63.0 | 47.2 | 1370.6 |
| | % Poss | 17 | 21 | 23 | 41 | 29 | 45 | 40 | 36 | 23 | 27 | 24 | 20 | 31 |
| | Daily Mean | 1.44 | 2.07 | 2.66 | 5.73 | 4.53 | 7.45 | 6.45 | 5.27 | 2.94 | 2.84 | 2.10 | 1.52 | 3.75 |
| Precipitation ins. | Amount | 2.63 | 4.56 | 3.78 | 3.06 | 2.29 | 2.29 | 0.84 | 4.05 | 2.64 | 0.67 | 6.64 | 1.85 | 35.3 |
| | Rain Days | 17 | 21 | 22 | 16 | 16 | 9 | 8 | 21 | 10 | 8 | 26 | 17 | 191 |
| | Max. Rain in 1 day | 0.40 | 0.63 | 0.54 | 0.52 | 0.85 | 1.36 | 0.37 | 1.14 | 1.32 | 0.16 | 1.51 | 0.44 | 1.51 |
| | Date | 5 | 20 | 21 | 7 | 26 | 22 | 22 | 6 | 27 | 29 | 5 | 28 | Nov. 5 |
| | Snow on Sleet Days | 2 | 3 | 4 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| | Days Snow Lying | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| AVERAGES Mean Daily Temperature °F | Max | 45.7 | 46.1 | 50.6 | 55.5 | 63.7 | 68.1 | 71.4 | 70.5 | 66.0 | 58.1 | 49.4 | 45.9 | 57.5 |
| | Min | 34.2 | 33.8 | 35.1 | 38.2 | 44.6 | 49.2 | 52.8 | 52.3 | 48.2 | 43.1 | 36.9 | 35.4 | 42.0 |
| | Mean | 39.7 | 39.9 | 42.9 | 46.9 | 54.1 | 58.7 | 62.1 | 61.4 | 57.1 | 50.6 | 43.1 | 40.7 | 49.7 |
| Precipitation | Amount | 1.90 | 1.64 | 1.71 | 1.46 | 1.65 | 1.95 | 2.03 | 2.09 | 1.70 | 2.98 | 2.30 | 2.59 | 24.0 |
| | Rain Days | 15 | 13 | 13 | 12 | 10 | 10 | 12 | 13 | 11 | 15 | 12 | 15 | 153 |
| Thunderstorm Activity | Days of Thunder | 0 | 0 | 0 | 5 | 1 | 2 | 2 | 4 | 1 | 1 | 0 | 0 | 16 |
| | Days of Hail | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |

## EXTRACT FROM THE RECORDER'S REPORT FOR BOTANY FOR 1951

by K.I. BUTLER

Although there has been little of unusual botanical interest during the year 1951, several members have submitted some interesting observations.

Corydalis claviculata (Climbing Corydalis). This plant, recorded many years ago from Bucklebury Common, was rediscovered in another part of the Common in 1950, and was found by M. Bowen growing fairly abundantly near its old locality this summer.

Symphytum tuberosum. Observed again by Mrs. Edwards at Kingston Lisle, Berks., where it was first recorded in 1945.

Symphytum peregrinum. This alien plant with its beautiful bright blue flowers was found on the side of the road leading down from Inkpen Beacon by L.H. Williams who also met it again near Winkfield.

Helmintha echoides (Ox Tongue). This plant is uncommon locally and has been recorded only once in recent years (1949), but Miss Hiscock saw it growing among Lucerne near Hartslock Woods, Oxon., this year.

Hyoscyamus niger (Henbane). Miss A. Duncan saw this plant in fruit near Kingwood, Oxon.

Ophioglossum vulgatum (Adder's Tongue). A new locality in Chazey Wood, Oxon., was discovered by Mrs. Simmonds this year and Mr. Betts also records it from the lower slopes of Watlington Hill.

Pyrola minor (Common Wintergreen). Now recorded from Crowthorne, Berks., by Miss J. Watson.

Hottonia palustris (Water Violet). Found by P. Hannay in streams near the Thames.

Alchemilla vulgaris agg. (Lady's Mantle). This plant, very uncommon in the Reading district, was found by Miss L.E. Cobb at Christmas Common and near Nettlebed - both localities in Oxon.

Trifolium subterraneum. On sandy ground at Colemansmoor (the recorder) and near Ascot (L.H. Williams)

Trifolium striatum. At Colemansmoor, Berks., and on ballast holes near the Kennet.

Polygala calcarea. On the road cutting between Kingsclere and Ashford Hill, Hants. (L.H. Williams).

Jasione montana (Sheeps-bit Scabious). Near Ascot, Berks. (L.H. Williams)

Verbascum blattaria. In a field near Basildon, Berks., and on waste ground near Ascot (L.H. Williams)

Carduus eriophorus (Woolly Thistle). At Wittenham Clumps. This spot was mentioned by Druce in his Flora of Berkshire (1897).

Lotus tenuis. Together with L. siliquosus at Sham Hill, Berks.

In July some ditches and streams of Henley Reach were visited and yielded many interesting plants which are becoming increasingly scarce owing to the vast system of drainage which is being carried out in many parts of the country. Chief among these were Hottonia palustris, Hydrocharis morus-ranae (Frogbit), and Myriophyllum verticillatum (Water Milfoil).

On a chalk slope at Maidensgrove Scrubs, Oxon., the rare orchid Herminium monorchis (Musk Orchid) was found growing plentifully.

At Crookham Common, Berks., on the verge of the runways of the airstrip constructed during the war, chalk-hill plants were seen growing with those of the heath. The two interesting aliens Stachys recta and Ononis natrix were also seen.

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## EXTRACT FROM THE RECORDER'S REPORT FOR ENTOMOLOGY FOR 1951

by L.H. WILLIAMS, B.Sc.

1951 was a bad year for insects in this country, for, not only were migrants few in numbers, but even our common indigenous species were noticeably scarcer than usual. The following are the most interesting and, in my opinion, the most valuable of the records which I have received. Where no statement to the contrary is given, the records and notes are taken from my own observations.

### ORTHOPTERA.

Grasshoppers were very late to hatch from the egg this Spring owing to the exceptionally prolonged wet spell in April and early May. It was not until the middle of the latter month that I saw the first hoppers of Omocestus viridulus in the field - about three weeks later than usual.

Omocestus ventralis. A small but flourishing colony of this distinctively coloured grasshopper was discovered in Pamber Forest, Hants., in August. This species is, in Britain, almost confined to sandy heathy rides and glades in the New Forest.

Chorthippus parallelus. A number of macropterous females found on a South-facing chalk slope at Basildon, Berks., in late August.

Tetrix subulatum. A colony found in the marsh at Pamber Forest in early May.

### HEMIPTERA.

Research work at the Imperial College Field Station near Ascot has resulted in the discovery of a species of Mirid Bug new to the British list. I am indebted to Mr. W.A. Sands for this account of the insect. "The bug Deraeocoris olivaceus is a native of Southern Europe and Germany. It closely related to the common British species D.ruber which it closely resembles in general colouration, though of much larger size, being 8-10mms. in length and very robust. Three specimens of the adult were taken, and one nymph, showing that it must have bred in this country for at least one season. It must, however, be a fairly recent introduction, since it is one of the largest, if not the largest Mirids in this country, and it is difficult to believe that it has been overlooked until this year."

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|---|---|---|
| Aelia accuminata | Ascot, Berks. | J. Riley |
| Eurodela oleracea | " | " |
| Cyllocoris flavonotatus | " | " |
| Ischnodemus subulati | " | " |
| Cymus melanocephalus | " | " |
| Thyreocoris scarabaeioides | " | " |
| Pentatoma baccarum | Basildon, Berks. | " |
| Podops inuncta | " | " |
| Ledra aurita | Ascot, Berks. | " |
| Sehirus dubius | Basildon, Berks. | " |
| Elatophilus nigricornis | Ascot, Berks. | " |
| Centrotus cornutus | " | " |

In a paper recently published in the "Entomologist" (see end), Mr. V. Eastop gives an account of the Aphid fauna of the Reading district. In the space of only three years, whilst he was at Reading University, he found no fewer than six species which were new to Britain. These are:- Aphis crepidus, A.lamiorum, A.schneideri, Saltusaphis intermedia, Trama oculata, and T.voigti. His list of new county records is, unfortunately, too long to include in this extract.

LEPIDOPTERA.

This has been a great year for records. Mr. R.W. Parfitt took two specimens of the Obscure Wainscot Moth (Leucania obsoleta) at light at Woolhampton in late June. In the same locality he took the Silky Wainscot (Senta maritima var wismariensis) last year.

Last year I took aspecimen of the Brighton Wainscot (Oria musculosa) in Tilehurst. I gave a full account of this moth in last year's publication. Mr. B. Baker took one in the same locality (actually from the same street lamp) on August 9th this year.

Dicycla oo Ascot, Berks. (at light) J. Riley

Vanessa urticae A straw-coloured larva found by Miss R.E. Gault produced a typical butterfly. It was, evidently, a mutation confined to the caterpillar.

COLEOPTERA

One of my earliest notes for 1951 is that of a female Cockchafer (Melolontha melolontha) which I disturbed from among dead leaves at Ascot on February 14th. This insect normally hibernates as a larva, the adults appearing in May.

Leptinus testaceus is a small light brown beetle which is regarded as a rarity. However, this is probably due to its very strange habits. It lives in the nests of mice, and a number of these beetles have been found at the Field Station at Ascot clinging to the fur of trapped mice. They presumably live as scavengers on the litter always associated with the nests of mice, and they have also been recorded in the nests of Humble-bees.

The following records of beetles have been given to me by Mr. J. Riley:-

| | | |
|---|---|---|
| | Phytodecta olivacea, together with var. litura | Ascot, Berks. |
| | Coryphium angusticolle | " |
| | Pocadius ferrugineus | " |
| | Micromalus flavicornis | " |
| | Cerylon histeroides | " |
| | Aphodius granarius | " |
| | Hedobia imperialis | " |
| | Hylastes angustatus | " |
| | H. opacus | " |
| | Notiophilus substriatus | " |
| | Hydrothassa aucta | " |
| | Ischnomera sanguinicollis | " |
| | Thanasimus formicarius | " |
| | Limonius minutus | " |
| | Tychius tomentosus | " |
| | Scaphidium quadrimaculatum | " |
| | Phyllobius viridicollis | Walbury Camp |
| * | Tomoxia biguttata | Ascot, Berks. |
| | Podabrus alpinus | " |
| * | Panagaeus bipustulatus | " |
| | Phytodecta viminalis | Pamber Forest, Hants. |
| | Luperus longicornis | " |
| * | Prionus coriarius | Ascot, Berks. |
| * | Elater rufipennis | " |

* denotes 'rare'.

Reference: V.F. Eastop, B.Sc. "A List of the Aphids Collected in Berkshire." "The Entomologist", 1951.

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## EXTRACTS FROM THE RECORDER'S REPORT FOR ORNITHOLOGY FOR 1951

by Dr. E.V. WATSON

(Period under consideration: October 12th, 1950 - October 17th, 1951)

The Recorder wishes to acknowledge his indebtedness to Dr. C.C. Balch and Mr. C.E. Douglas, Editors of the Reading Ornithological Club Reports, and to numerous other members of the R.O.C. in the compilation of the notes that follow.

### 1. Winter Gulls

Herring Gull. Main flock of up to 100 at Manor Farm during winter months.

Black-headed Gull. Between October 16th and October 28th, 1950, numbers at Caversham Bridge varied from a few birds to about 20. On October 28th (the first severe frost) 25-30 birds were present.

Common Gull. Almost always present with Black-headed Gulls during winter. Dr. Balch and Dr. Castle recorded some 300, with 500 Black-headed Gulls at Shinfield on January 11th, 1951.

2. Winter duck. Besides Mallard, the following 11 species have been observed:

Sheld-duck. Only record is of four on R. Thames at Pangbourne, John Ruby, October 15th, 1950.

Gadwall. A drake was seen by Mr. Simmons and Mr. Jones at Cranemoor Lake on several occasions early in 1951.

Teal. Chief local centres of winter population seem to be Bulmershe and Cranemoor Lakes. At both of these localities numbers have exceeded 100 on occasions.

Pintail. Several records between October 1950 and April 1951, but never more than two at any one time; chiefly at Cranemoor Lake Englefield, but also at Theale and Bulmershe.

Shoveler. Small numbers at Cranemoor Lake Englefield in winter. Mr. N.G.B. Jones recorded about 4 pairs at Bulmershe on March 7th and the Recorder saw a pair on April 1st at Sonning gravel pit.

Pochard. Small numbers all winter on most waters, larger numbers at times, e.g. 52 seen by Mr. K.E.L. Simmons at Theale on December 22nd and 72 seen by Mr. Simmons and Mr. C.E. Douglas at Burghfield gravel pit on January 28th.

Tufted duck. Experience at Sonning, Burghfield and elsewhere was chiefly of small numbers, but Mr. N.G.B. Jones recorded a total of 84 at Bulmershe on March 4th.

Golden Eye. Various observers have met with single birds on Burghfield and Aldermaston gravel pits, and on Bulmershe and Cranemoor Lakes.

Goosander. Two, seen by Mr. C.E. Douglas at Aldermaston on December 10th, 1950; two at Cranemoor Lake (Mr. Douglas and Mr. Simmons) January 13th, 1951.

Smew. Mr. Simmons saw one at Theale gravel-pit on January 7th; Mr. J.D. Wood and Mr. N.G.B. Jones saw one in early March on Bulmershe North Lake. These appear to be the only records during the period under review.

3. Winter finches and other winter movements.

(a) Finches.

There were the usual winter flocks of the common species of finch. Among less common species the following may be mentioned:

Siskin. A flock of 20 - 30 in alders near Whiteknights Lake, Reading, December 10th and 11th, 1950.

Brambling. Small numbers at Leighton Park School, November 13th - December 4th.

Tree Sparrow. On a number of occasions detected in small numbers in mixed winter flocks of other finches.

Bullfinch. Although not an uncommon bird in the district, Mr. Bowden's record of December 20th may be mentioned, he having met with the species on 3 separate occasions, in quick succession, on that day.

Hawfinch. Although known to be present at Leighton Park School in winter (as in summer) its movements during spring and autumn are imperfectly known, and any observations on it would therefore be much appreciated.

(b) Other winter records.

Golden Plover. Mr. Bowden records about 200 in a field near Thatcham on February 15th. Other observers have met with comparable flocks of this species, which is apt to be a hard weather bird with us, in fields west of Theale.

Fieldfare. The latest date for this bird in the Spring of 1951 appears to have been April 20th, - Dr. C.C. Balch at Arborfield.

Redwing. Latest spring date April 8th, C.E. Douglas and K.E.L. Simmons at Burghfield.

Stonechat. A few winter records.

4. Spring arrival of migrants.

Members' records of spring immigrants have not been forthcoming. Records for the Reading district are satisfactorily covered in the Reading Ornithological Club Report No.5, pp.2-5, to which the reader is referred for fuller details than can be given here.

The spring of 1951 was exceptionally wet and cold, with the result that the season was a "late" one on the whole. The Recorded did not himself hear the Chiffchaff at Caversham until April 7th, and on the same date the first Blackcap had arrived. Mr. C.E. Douglas, however, had noted the former as early as March 23rd at Theale. There was no record of the Willow Warbler until Mr. C.E.Bignal met with one at Earley on April 7th, and these birds were not well established in the district until the third week of April. Mr. Simmons saw an early swallow at Burghfield on March 23rd, but no others were seen for a fortnight. The Cuckoo had arrived at Leighton Park School on April 13th, but the Recorder did not hear it at Caversham until April 19th.

The Wryneck returned as usual to Caversham and other favoured localities, but was not much in evidence until early May.

April 17th saw the arrival of the first Tree Pipits, Sedge Warblers, Whitethroats and Nightingales in the district (observers Dr. Balch, Mr. Bignal and Mr. Simmons), and on April 18th Mr. H.A. Thompson and Mr. G.A. Garraway saw the first Turtle Dove at Ruscombe. This species was not noted at Caversham by the Recorder until April 26th, the Lesser Whitethroat having arrived on the 25th. Swifts had been observed from April 19th onwards, but did not come into Reading in numbers until the first week of May. So too with the House Martin, which Dr. M.E. Castle had recorded at Theale as early as April 1st, but which was not generally distributed until several weeks later.

5. Spring passage of Waders and Terns.

A number of observers who keep a regular watch at local gravel pits recorded the following waders on spring passage; Ringed Plover, Grey Plover, Whimbrel, Dunlin, Common Sandpiper and Avocet. The Grey Plover (May 25th) and the Avocet (May 4th) were seen by Mr. C.E. Douglas and others. Mr. Douglas also saw a Green Sandpiper flying N.N.E. over Burghfield Gravel-pit on April 30th.

Between May 2nd and May 19th Black Terns were observed at Burghfield gravel-pit on a number of occasions. As the editors of the R.O.C. Report point out, however, the passage of this species was both smaller and earlier than usual.

6. Breeding Records.

No certain records of outstanding new species breeding in the Reading area in 1951 have come to the Recorder's notice. As in other recent years, however, the following were among the more interesting species known to have bred within a comparatively short distance of Reading:

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|---|---|
| Little Ringed Plover | Reed Warbler |
| Wryneck | Great crested Grebe |
| Stone Curlew | Long-eared Owl |
| Redshank | Cirl Bunting |
| Grey Wagtail | |

Not all these are by any means rare species. The Wryneck, however, is a decreasing British bird; the Grey Wagtail is one that has perhaps changed its status somewhat in S.England in recent years, remaining to breed with increasing frequency; and attention may usefully be called to the very considerable numbers of Reed Warblers and Great crested Grebes now breeding in the vicinity of some of the local gravel-pits.

7. Departure of regular visitors.

In 1951 Miss R. Gault noticed a movement of Warblers at Suttons' Trial Grounds as follows:

2 Garden Warblers, August 17th
1 Sedge Warbler, on the same date.

The Recorder heard a Blackcap "ticking" in his garden at Caversham during the latter part of August. This may have been a prelude to departure, but a late bird was recorded in Leighton Park School on October 4th. Other species remaining into October were Yellow Wagtail, Chiffchaff, Swallow, Sand and House Martins.

Readers are referred to the Reading Ornithological Club Report (No.5) for 1951 for much useful information concerning departure dates, including records of that rare summer visitor, The Hobby, seen by a number of observers in the Reading district during September.

In 1950 a late House Martin was noted at Leighton Park School on November 20th.

8. Autumn Passage of Waders and Terns.

This passage begins early, indeed movements may be observed by mid-July. Thus, 3 Curlew were seen, by Mr. Douglas and others, flying west near Burghfield gravel-pit on July 17th. A Wood Sandpiper, the first of a considerable passage, appeared at Aldermaston gravel-pit on August 5th. A Greenshank appeared at Burghfield gravel-pit on August 6th and stayed until the 15th, and the number of Common Sandpipers there was up to 9 on August 7th.

Besides the above species, there was a biggish passage of Green Sandpipers (noted at several waters in the area), and Dunlin, Ringed Plover and Jack Snipe were also noted in the Autumn migration period.

Mr. Bignal and Mr. Simmons noted Sandwich Terns at Burghfield gravel-pit on the 9th and 10th September respectively. Both Common and Arctic Terns were satisfactorily identified on autumn passage, the biggest numbers passing through in the 2nd week of September.

9. Various passage movements, rare visitors, etc.

In addition to the extensive spring and autumn passage of waders and terns already considered, the following records are worthy of note:

Grasshopper Warbler. By the Kennet near Burghfield Mill, May 5th (N.G.B. Jones).

Whinchat. Exceptionally big autumn passage, lasting until October 2nd. As many as 12 seen at one time at Burghfield gravel-pit; also several at Shinfield and elsewhere.

Black Redstart. One (female or immature) October 29th, 1950, at Theale gravel-pit (K.E.L. Simmons and N.G.B. Jones).

Hobby. Seen by various observers, Burghfield, Englefield and Shinfield, in August and September.

Spotted Redshank. Mr. K.E.L. Simmons had a very satisfactory view of one on December 3rd, 1950, at Reading Sewage Farm.

Other comparatively uncommon species recorded in the Reading district during the period under review were: White Wagtail, Pied Flycatcher, Stonechat, Common Buzzard and Water Rail. (Full details of these records will be found in the R.O.C. Reports, Nos. 4 and 5.)

10. Miscellaneous concluding remarks.

The Recorder concluded his report by referring to the importance of the study of bird behaviour. He referred to some observations carried out by Miss R. Gault on a flock of Lapwings. He stressed the lack of precise information concerning the status of some of our regular breeding species, mentioning that we lacked an exact picture of the breeding distribution of such birds as Woodlark and Yellow Wagtail. The Lesser Spotted Woodpecker was another such bird, and it was therefore gratifying to receive reports of it from three different N.H.S. members. Miss Butler had observed it on an Acacia in Morgan Road, Reading, May 6th - 28th; Miss Bray at Twyford had frequent visits from it, and Miss Gault reported it in April. In the Recorder's experience February - April is the period when this elusive species is apt to be most in evidence, but its status in the Reading area it must be confessed is as yet imperfectly known.

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